MML TM 94-06

COLLOCATED TUNABLE WAVENUMBER SENSOR/ACTUATORS FOR SMART STRUCTURES

N00014-92-C-0214

CDRL A001.17

Covering the period: 1 February to 28 February 1994

Submitted to:

Office of Naval Research
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Submitted by:

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Contract progress and activities since CDRL A001.16.

Summary of progress

- One actuator module from the last burnout was sintered. It is intact but has some minor cracks. Three other actuators (two with Pt electrodes and one with Au/Pt/Pd electrodes) were burned out and are ready to be CIPped and sintered.
- Another batch of tape was cast with a 36% volume fraction of binder. Two actuators were made and put into burnout.
- An actuator (6-65-1) was tested at 3000 psi (to 0.8 MV/m) over the temperature range (-10°C to 40°C). At 5°C, the average strain of the actuator was 460 μstrain.

Telephone calls, trips, and significant results

- Bridger briefed Commander Colvert (PEO, AAASMP) on the use of PMN in transducers. Data from this contract were included and acknowledged.

Results bearing on prior problem areas

- None

Programmatic changes

- None

Technical or scheduling problem areas

- There was a slight delay in CIPping the large actuators due to a problem with the bags leaking during CIPping. The problem was addressed and should be resolved following receipt of larger CIPping bags.

Contract and cost schedule status

- Expended funds as of 28 February 1994, including expenditures prior to 23 July, were $232K against a current budget of $250K.
- A revised cost schedule, beginning at the 23 July program restart, and reflecting the $114K funding gap is attached.

Plans for March 1994

- The three actuator modules from the last burnout will be CIPped and then sintered at a slower rate (10°C/min to 900°C, 5°C/min to 1200°C, 3 hour hold, 1°C/min to 500°C).
- The two actuator modules in burnout will be CIPped and sintered (the sintering schedule may be modified based on the results of the next sintered modules).

Preparers

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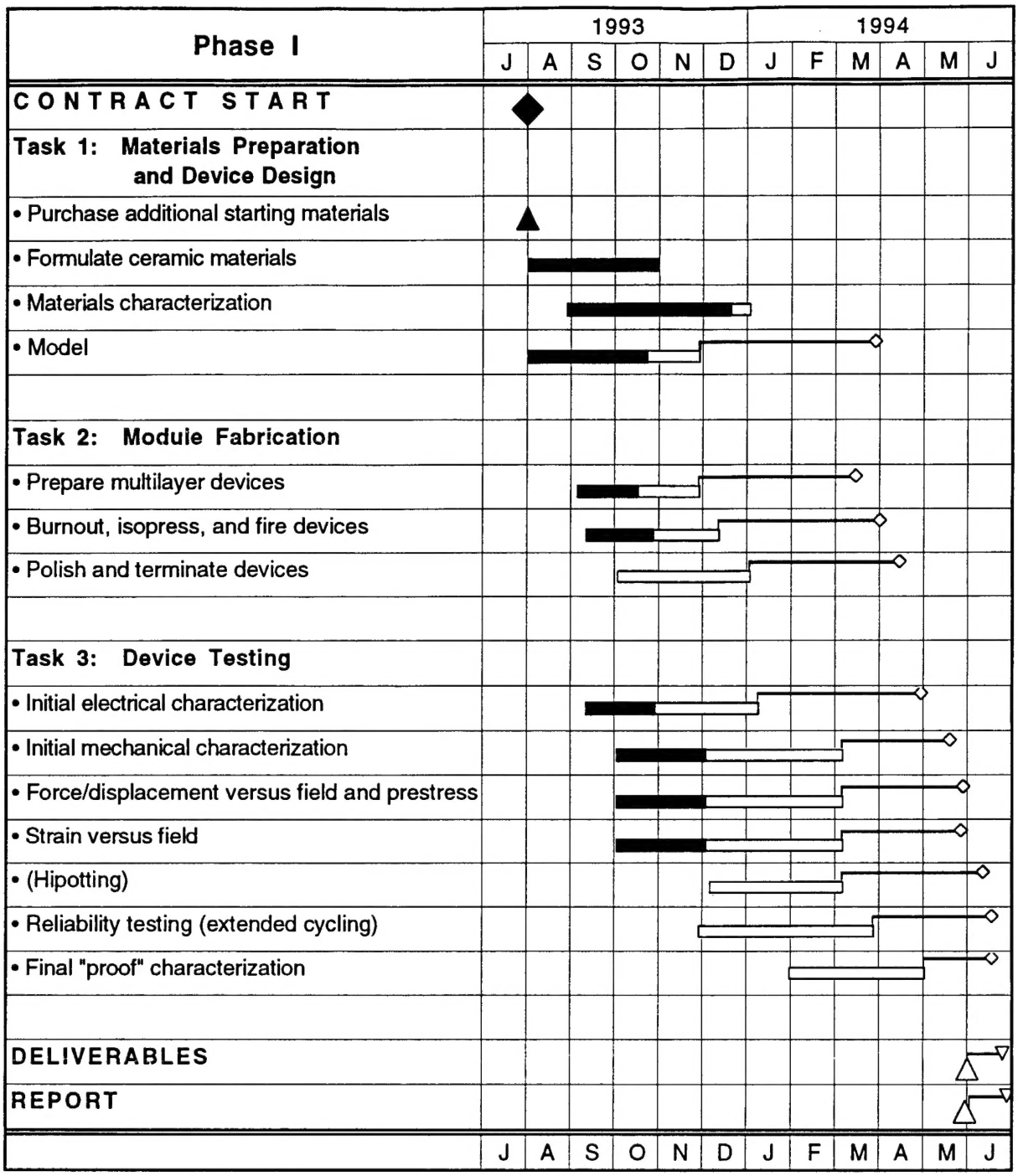
SCHEDULE, MILESTONES, AND DELIVERABLES -- Updated March 5, 1994



KEY:

Milestone: △

Planned task: ▭

Completed task: ▬

Task with new projected completion: ▭◇

ONR Sch Miles Deliv Ph-I

Mar 8, 1994

EXPENDITURE CHART

3117-000 ONR
Co-Fired High-Force Actuators